

ABSTRACT OF THE DISCLOSURE

DIFFRACTIVE LENS OPTICAL DESIGN

5 An optical system for use in a head-mounted display is provided which includes a
microdisplay (4) and a magnifier (10) for producing a magnified image of the microdisplay
for viewing by a human eye. The magnifier (10) includes a diffractive surface and has in
order: a first element (1) having a first surface (S1) which is convex in the direction of the
long conjugate, a block (3) of optical material, and a second element (2) having a second
10 surface (S2) which is convex in the direction of the short conjugate. The first surface (S1) is
preferably the diffractive surface. The magnifier provides a long eye relief, a large exit pupil,
and a large field of view with a minimum of components.